MT

MADE
IN
GERMANY

Electromagnetic Technology

KEB

Safe braking and holding

COMBISTOP H

COMBISTOP N

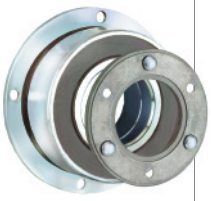
COMBISTOP D

COMBISTOP T

COMBISTOP

Electromagnetically actuated dual-surface spring applied DC brakes for dry operation.
… starting from page 4

COMBIPERM P1



COMBIPERM PC

COMBIPERM P1

COMBIPERM

Permanent magnet brakes
and clutches for dry operation.
… starting from page 16

SWITCHING, STOPPING, POSITIONING

COMBINORM C

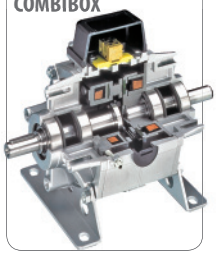
COMBINORM B

COMBINORM K

COMBINORM

electromagnetic-actuated open-circuit operated clutches and brakes without slip rings.
… starting from page 22

COMBIBOX



COMBIBOX

a ready to be installed electromagnetic- actuated clutch-brake-module
… starting from page 36

POWER SUPPLY / SWITCHGEAR

COMBITRON 91

COMBITRON 98

COMBITRON 94

COMBITRON

DC-supply from the alternating voltage supply system and electronic switches for electromagnetic clutches and brakes.
… starting from page 44

COMBINORM - operating-current operated brakes and clutches use the flux of an electromagnet, concentrated on two pole surfaces, for the connecting, separating or holding of shafts and the connected loads.

COMBINORM covers a complete program with brakes, clutches and combinations as installation and attachment components for the applications in machines, plants and equipment in the application range of 0.5 to 500 Nm.

On request we adapt the **KEB COMBINORM** to your constructional and electrical requirements.

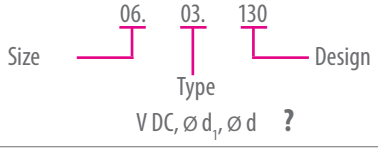
Program Schedule

COMBINORM	**Operating-current operated brakes and clutches**		
Operating current brake	**0.5 ... 500 Nm**	page 24	**COMBINORM B**
Operating current clutch-brake-combination	**7 ... 500 Nm**	page 26	**COMBINORM K**
Operating current clutch	**0.5 ... 500 Nm**	page 26	**COMBINORM C**
Operating current toothed clutch	**21 ... 390 Nm**	page 32	**COMBINORM T**

Technical Data

Switching times	page 34
Moments of inertia, friction, rating	page 35
Dimensioning / Calculations	page 50
Bores table **COMBINORM / COMBIPERM**	page 51

Ordering example: COMBINORM C

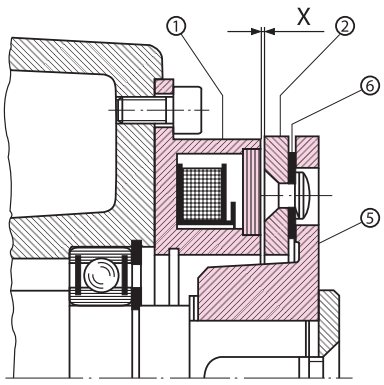


Installation Examples

flange mounted brakes

COMBINORM B **…02.120…**

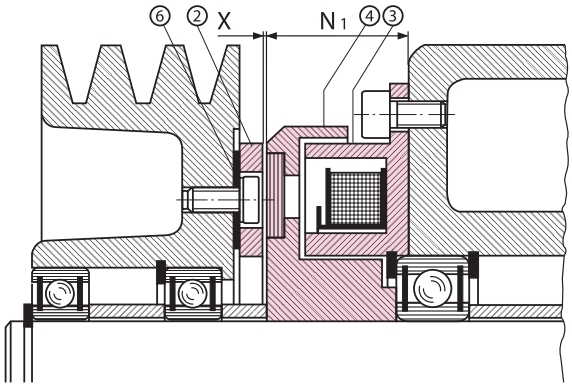
① brake magnet
② armature
⑤ hub
⑥ spring



flange mounted clutches

COMBINORM C and T **…03.110…**

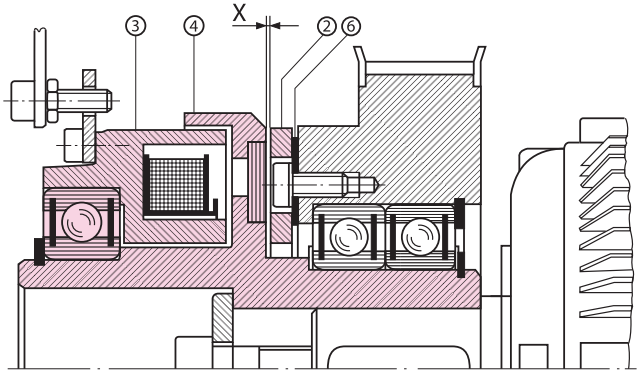
② armature
③ clutch magnet
④ rotor
⑥ spring



shaft mounted clutches

COMBINORM C and T **…03.810…**

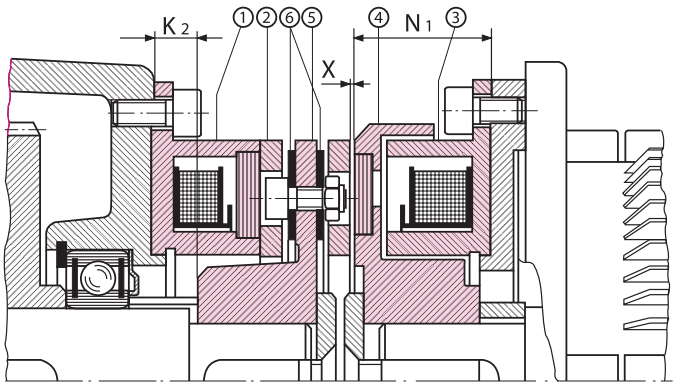
② armature
③ clutch magnet
④ rotor
⑥ spring



clutch-brake-combination

COMBINORM K **…04.170…**

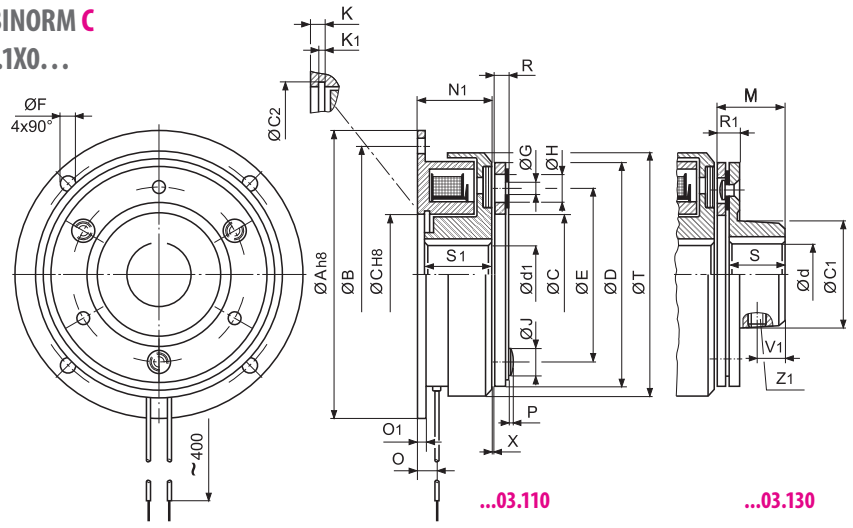
① brake magnet
② armature
③ clutch magnet
④ rotor
⑤ hub
⑥ spring



Flange mounted clutches

COMBINORM C

…03.1X0…



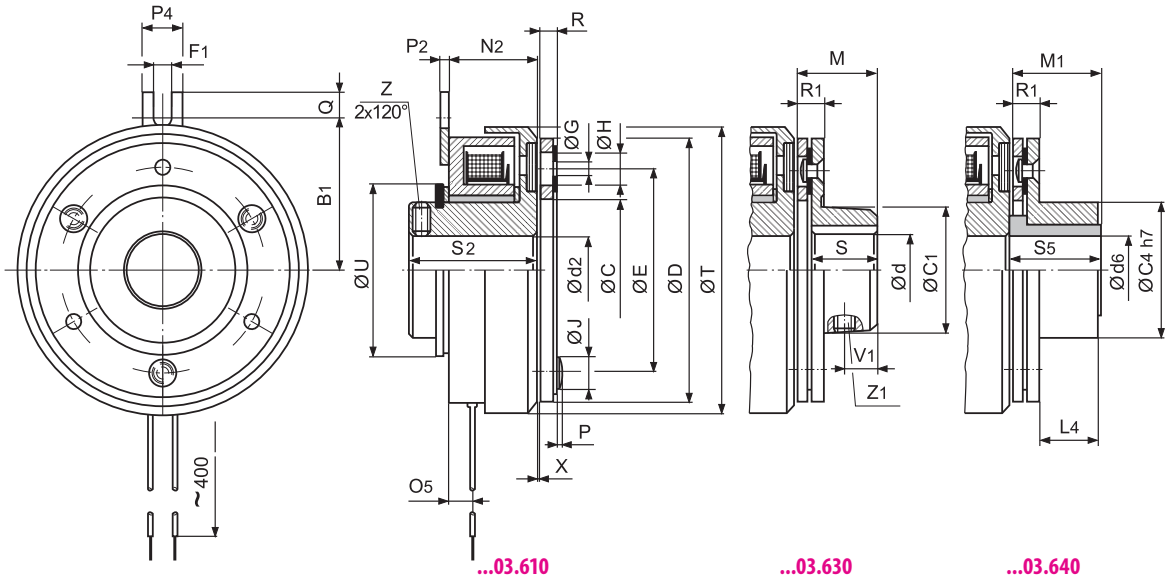
K_1	M	N_1	O	O_1	P	R	R_1	S	S_1	T	V_1	X	Z_1	Weight [kg]	
														110	130
-	9.3	18	5	1.5	1	2.3	4.3	7	16.5	31	2.5	0.1	1 x M 3	0.1	0.1
1.1	12.1	22.2	7.5	2	1.3	2.1	4.1	10	20.2	34	4	0.15	1 x M 3	0.1	0.1
1.1	14.7	25.4	7	2	1.5	2.7	5.3	12	23.4	43	5	0.15	1 x M 4	0.2	0.2
1.3	15	28.1	7.5	2	1.5	3	6	12	26.1	54	5	0.2	1 x M 5	0.35	0.4
1.6	18.8	24	6	3	2	3.8	7.3	15	22	67	6	0.2	1 x M 6	0.5	0.5
1.85	24.3	26.5	7	3	2	4.3	8.3	20	24	85	8	0.2	1 x M 6	0.9	1
2.15	31	30	8	4	2.5	6	11	25	27	106	10	0.2	1 x M 8	1.6	1.8
2.15	36.9	33.5	9	4	3	6.9	12.9	30	30	133	12	0.3	2 x M10	2.8	3.1
2.65	46.9	37.5	11	5	4	8.9	15.9	38	34	169	15	0.3	2 x M10	5.6	6.3
3.15	59.2	44	12	5	4.5	11.2	20.2	48	40	212.5	19	0.4	2 x M12	9.7	11
4.15	68	51	15	6	5	13	24	55	47	266	22	0.4	2 x M12	17.9	20.3

Shaft mounted clutches size 01 ... 07

COMBINORM C

…03.6X0…

table (1)



available shaft diameters page 51

table (1)

Size	M_{2N} 1) [Nm]	P_{20} [W]	B_1	C	C_1	C_4	d max	d_2 max	d_6 max	D	E	F_1	G	H	J	L_4	M	M_1
01	0.5	6	16.8	11	13.5	13	6	6	6	28	19.5	3.1	2 x 2.1	5.3	4.5	4.8	9.3	9.3
02	0.75	6	20	13	16	14	8	6	6	32	23	3.1	3 x 2.6	6	5	7.8	12.1	12.1
03	1.5	8	23	19	22	18	10	10	10	40	30	3.1	3 x 3.1	6	5.5	9.1	14.7	14.7
05	3	10	28	26	24	28	15	17	15	50	38	3.1	3 x 3.1	6.5	5.5	8.8	15	15
06	7	15	36	35	32	-	18	20	-	63	50	5.2	3 x 4.1	10	8	-	18.8	-
07	15	20	45	42	38	-	22	25	-	80	60	5.2	3 x 4.1	11	8	-	24.3	-

table (2)

Size	M_{2N} 1) [Nm]	P_{20} [W]	A_{h8}	A_1	B	B_1	C	C_1	d max	d_3 max	D	D_2	E	E_1	F	F_1	G	H	J
06	7	15	80	-	72	-	35	32	18	17	63	-	50	-	4.5	-	3 x 4.1	10	8
07	15	20	100	-	90	-	42	38	22	22	80	-	60	-	5.5	-	3 x 4.1	11	8
08	30	28	-	62.5	-	56	52	48	30	30	100	85	76	45.75	-	6.5	3 x 5.1	11.5	10
09	65	35	-	75	-	68.5	62	58	35	35	125	95	95	55	-	6.5	3 x 6.1	15	11.5
10	130	50	-	95	-	87.5	80	73	45	50	160	126	120	72.5	-	9	3 x 8.1	21	14.5
11	250	68	-	115	-	107.5	100	92	60	50	200	126	158	88	-	9	3 x 10.1	19	17.5
12	500	85	-	145	-	135	125	112	70	60	250	160	210	110	-	11	4 x 12.1	28	20.5

All dimensions in mm keyway according to DIN 6885/1-P9 Standard voltage 24 V DC VDE 0580, ISO-class „B“ 1) rated torque after running in process

Shaft mounted clutches size 06 ... 12

COMBINORM C

...03.XX0...

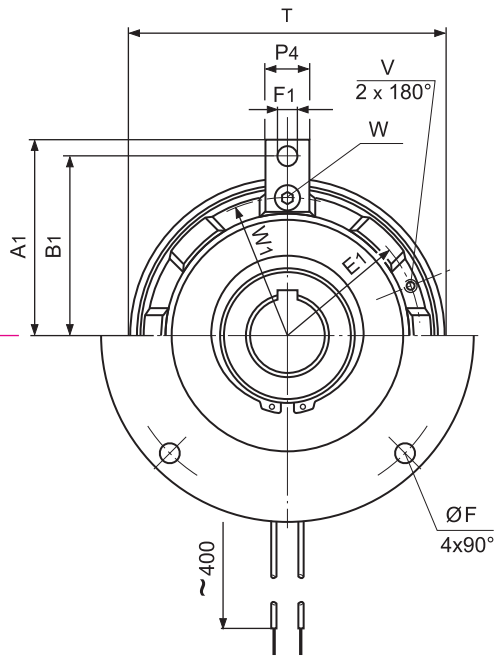
table (2)

design
torque support

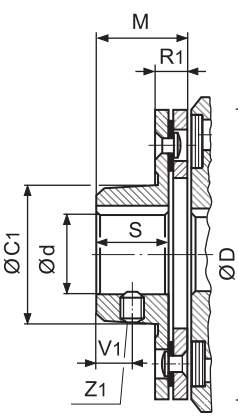
size 08... 12

size 06 + 07

design
flange

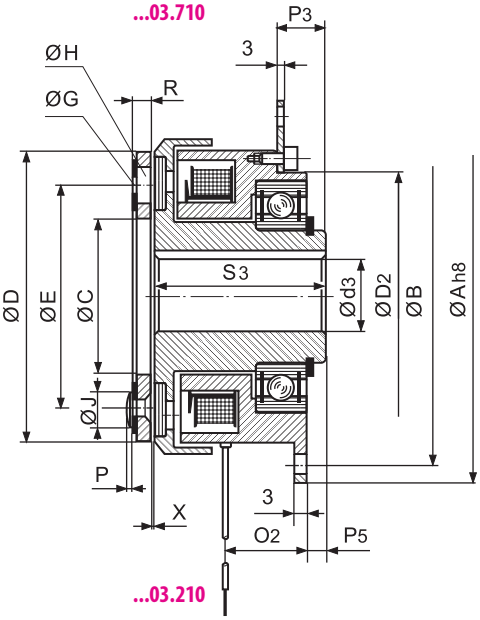


...03.730



...03.230

...03.710



...03.210

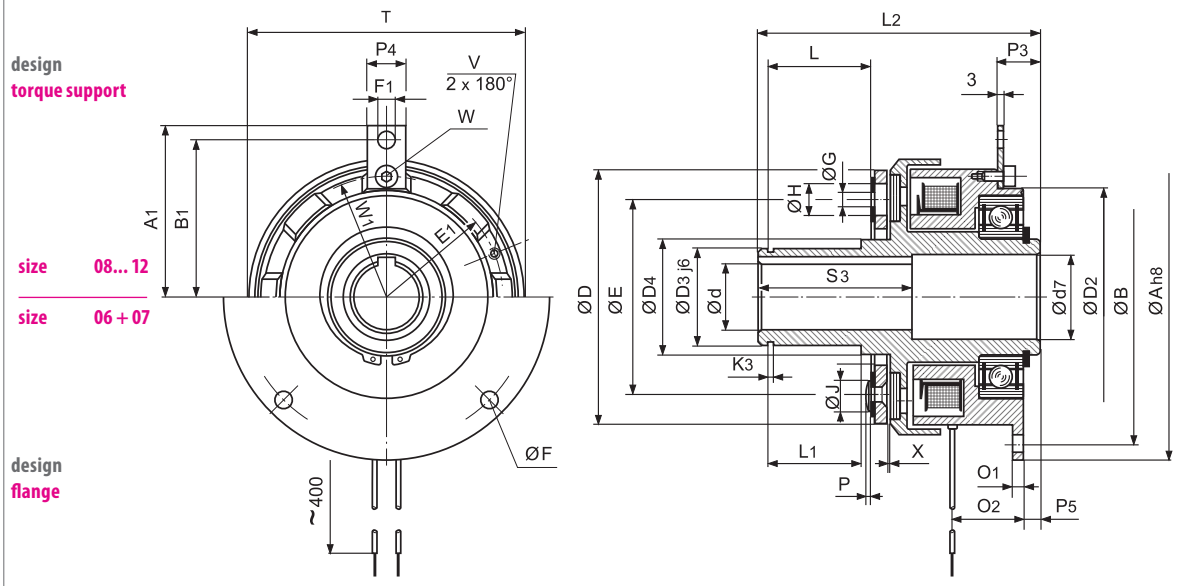
N_2	O_5	P	P_2	P_4	Q	R	R_1	S	S_2	S_5	T	U	V_1	X	Z	Z_1	Weight [kg]	
																	110	130
17.3	3.6	1	1.5	8	3	2.3	4.3	7	23.5	9.4	31	17	2.5	0.1	M3	M3	0.1	0.1
19.8	5	1.3	1.5	8	3	2.1	4.1	10	26.2	12.25	34	21	4	0.15	M3	M3	0.1	0.1
23	5.1	1.5	1.5	8	3	2.7	5.3	12	30.4	14.85	43	23	5	0.15	M4	M4	0.2	0.2
26.1	7.8	1.5	1.5	8	3	3	6	12	34.1	15.2	54	32	5	0.2	M4	M5	0.35	0.4
24	6	2	2.5	12	7	3.8	7.3	15	33	-	67	41	6	0.2	M4	M6	0.5	0.5
26.5	7	2	2.5	12	7	4.3	8.3	20	38	-	85	50	8	0.2	M6	M6	0.9	1

M	O_2	P	P_3	P_4	P_5	R	R_1	S	S_3	T	V	V_1	W	W_1	X	Z_1	Weight [kg]	
																	210/710	230/730
18.8	19	2	-	-	4	3.8	7.3	15	41	67	-	6	-	-	0.2	1xM6	0.8	0.9
24.3	21.5	2	-	-	4.5	4.3	8.3	20	45	85	-	8	-	-	0.2	1xM6	1.5	1.6
31	24	2.5	16.2	12	5.5	6	11	25	51.5	106	M5	10	M4	46.5	0.2	1xM8	2.3	2.5
36.9	25	3	18.7	14	5.5	6.9	12.9	30	55	133	M8	12	M5	55	0.3	2xM10	3.7	4.1
46.9	31.5	4	21.5	14	7	8.9	15.9	38	65	169	M8	15	M5	72.5	0.3	2xM10	7	7.7
59.15	32.5	4.5	23	20	7	11.15	20.15	48	71	212.5	M10	19	M6	88	0.4	2xM12	13.1	14.3
68	41	5	41	22	8	13	24	55	85	266	M10	22	M8	110	0.4	2xM12	23	25

Shaft mounted clutches with bearing take-up for the output

COMBINORM C

…03.810…



...03.810

available shaft diameters page 51

Size	M_{2N} [Nm] 1)	P_{20} [W]	M_A [Nm] 2)	A_{h8}	A_1	B	B_1	C_5	D	D_2	D_3	D_4	d_4 max	d_7	d max	E	E_1	E_2	F	F_1	G
06	7	15	10	80	-	72	-	30	63	-	25	29	19	17	16	50	-	44	4x4.5	-	3x4.1
07	15	20	25	100	-	90	-	40	80	-	35	40	26	25	22	60	-	68	4x5.5	-	3x4.1
08	30	28	25	-	62.5	-	56	45	100	85	40	46	30	28.5	25	76	45.75	80	-	6.5	3x5.1
09	65	35	50	-	75	-	68.5	60	125	95	50	57	38	33	35	95	55	100	-	6.5	3x6.1
10	130	50	140	-	95	-	87.5	85	160	126	70	76	55	41	50	120	72.5	140	-	9	3x8.1
11	250	68	220	-	115	-	107.5	100	200	126	70	76	65	48	50	158	88	165	-	9	3x10.1
12	500	85	500	-	145	-	135	125	250	160	80	89	85	52	60	210	110	215	-	11	4x12.1

All dimensions in mm keyway according to DIN 6885/1-P9 Standard voltage 24 V DC VDE 0580, ISO-class „B" 1) rated torque after running in process 2) tightening torque for W_2

For flexible **clutches** (type ...03.840) the following additional instructions are applicable:

The radial and axial screws connecting the rubber element to the hubs must all be tightened to the torque (M_A 2)) given in the table, using a torque wrench.
Ensure that when tightening the screws the aluminium bushes do not twist in the rubber part and that they sit squarely. In order to reduce friction between the screw head and the aluminium bush smear a small amount of grease under the head of the screw before fitting. If necessary use a suitable tool to apply counter pressure on the element to prevent twisting of the rubber part while tightening the screws. This is particularly important with the radial screws otherwise the curved faces between the aluminium bush and the hub will not engage on the full area but only across the two sides. This will inevitably lead to slackening of the screws and destruction of the clutch. If the clutch is supplied in a pre-assembled state, do not dismantle it, but fit it in this condition.

Shaft mounted clutches with flexible clutch

COMBINORM C

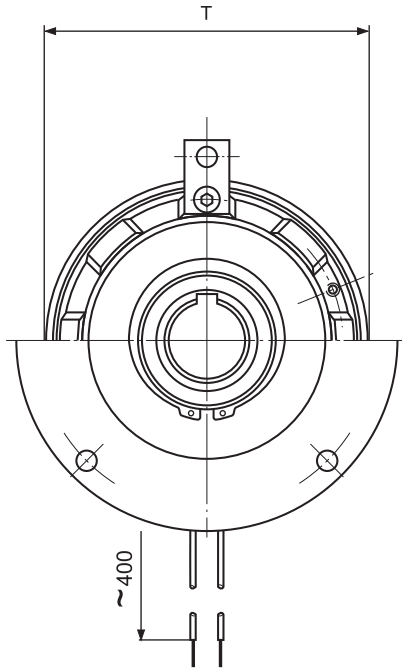
…03.840…

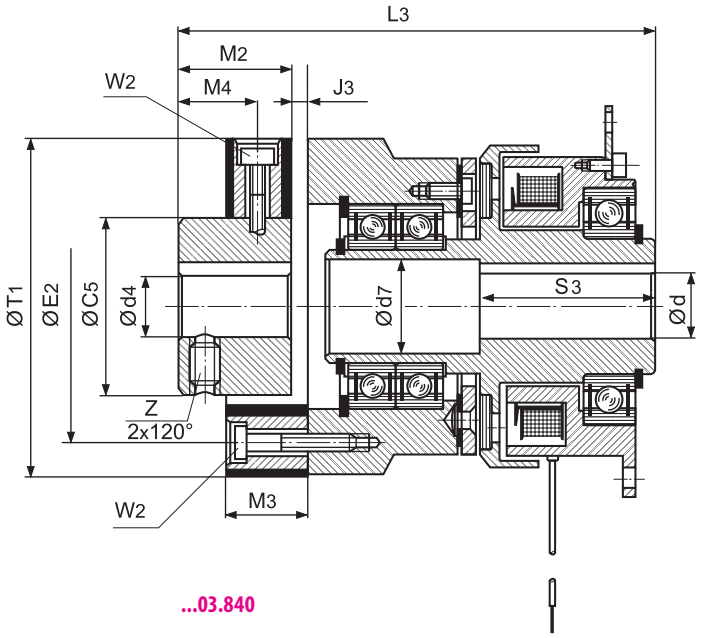
design
torque support

size 08... 12

size 06 + 07

design
flange

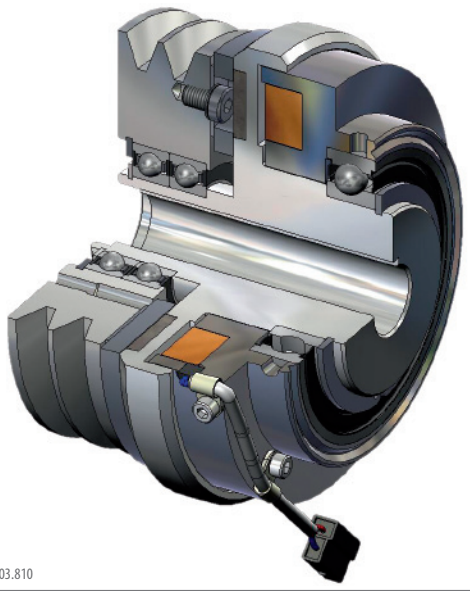




...03.840

H	J	J_3	K_3	L	L_1	L_2	L_3	M_2	M_3	M_4	O_1	O_2	P	P_3	P_4	P_5	S_3	T	T_1	V	W	W_1	W_2	X	Z	Weight [kg]	
																										810	840
10	8	2	1.3	32.9	25.6	80	117	30	24	19	3	19	2	-	-	4	41	67	56	-	-	-	2 x M 6	0.2	M 5	1	1.7
11	8	4	1.6	37.7	29.9	90	129	30	24	20	3	21.5	2	-	-	4.5	45	85	85	-	-	-	2 x M 8	0.2	M 6	1.8	3
11.5	10	4	1.85	35.2	32.15	96	141	35	28	23	-	24	2.5	16.2	12	5.5	51.5	106	100	M 5	M 4	46.5	3 x M 8	0.2	M 8	2.7	4.1
15	11.5	4	2.15	37.6	34.6	103	160	45	32	31	-	25	3	18.7	14	5.5	55	133	120	M 8	M 5	55	3 x M10	0.3	M10	4.2	7.4
21	14.5	6	2.65	47.8	43.1	126	200	60	46	40	-	31.5	4	21.5	14	7	65	169	170	M 8	M 5	72.5	3 x M14	0.3	M10	8.3	14.6
19	17.5	8	2.65	47.5	43.3	134	217	65	58	40	-	32.5	4.5	23	20	7	82	212.5	200	M10	M 6	88	3 x M16	0.4	M12	14.5	24.4
28	20.5	8	2.65	59.6	55.3	162	260	80	70	49	-	41	5	27	22	8	85	266	260	M10	M 8	110	3 x M20	0.4	M12	26	45.2

Size	Compliance [mm] of flexible clutches	
	radial	axial
06	1.5	2
07	1.5	3
08	1.5	3
09	2	4
10	2	5
11	2	5
12	2	5



10.03.810